SUPERCRITICAL COMPOSITIONS FOR REMOVAL OF ORGANIC MATERIAL AND METHODS OF USING SAME

Abstract of the Disclosure

SUB F1

A method for removing organic material in the fabrication of structures includes providing a substrate assembly having an exposed organic material and removing at least a portion of the exposed organic material using a composition having at least one component in a supercritical state. The composition includes an oxidizer selected from the group of sulfur trioxide (SO_3), sulfur dioxide (SO_2), nitrous oxide (N_2O), NO, NO_2, ozone (O_3), hydrogen peroxide (H_2O_2), F_2, Cl_2, Br_2, and oxygen (O_2). For example, the exposed organic material may be selected from the group of resist material, photoresist residue, UV-hardened resist, X-ray hardened resist, carbon-fluorine containing polymers, plasma etch residues, and organic impurities from other processes. The at least one component in a supercritical state may be an oxidizer selected from the group of sulfur trioxide (SO_3), sulfur dioxide (SO_2), nitrous oxide (N_2O), NO, NO_2, ozone (O_3), hydrogen peroxide (H_2O_2), F_2, Cl_2, Br_2, and oxygen (O_2); preferably sulfur trioxide. Further, the composition may include a supercritical component in a supercritical state selected from the group of carbon dioxide (CO_2), ammonia (NH_3), H_2O, nitrous oxide (N_2O), carbon monoxide (CO), inert gases (e.g., nitrogen (N_2), helium (He), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe); preferably carbon dioxide. Further, organic material removal compositions for performing such methods are provided.